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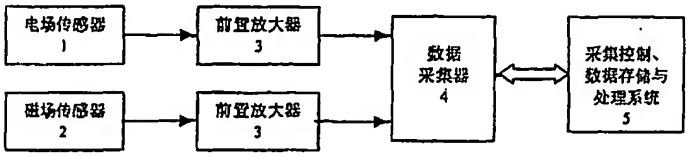
(54) Title: THE METHOD AND APPARATUS FOR MEASURING RESISTIVITY OF EARTH BY ELELCTROMAGNETIC WAVES

(54) 发明名称: 大地电磁波电阻率测量方法及其仪器



1. ELECTRIC FIELD SENSOR
2. MAGNETIC FIELD SENSOR
3. PREAMPLIFIER
4. DATA COLLECTION SYSTEM
5. SYSTEM FOR COLLECTION, CONTROL, AND DATA PROCESSING

(57) Abstract: This invention involves the method and apparatus for measuring the resistivity of earth by electromagnetic waves. The strata are sampled by sensors for electric fields, sensors for magnetic fields and data collection means. The depth coefficients are determined and the depth coefficients of the surface are corrected. The resistivities of earth, which are determined by electromagnetic waves, are consecutively measured by means of a sampling and controlling system, and a data storage and processing system on the basis of basic relationships between the depth of the stratum (H) and the transmitting frequency (F), basic relationships between the resistivity (ρ) determined by electromagnetic waves and the depth (H), and estate fishing a coordinate system for observing. The relationships between the frequencies and the depths are directly determined by utilizing the data on-the-spot survey by means of the invention. The invention modifies the traditional methods, which utilizes multiple variables theoretical equations to obtain the depth or thickness of the stratum, and makes the resistivity of the stratum to be a single variable. The invention improves the measuring precision greatly. This invention can be directly used to prospect mineral resources, decrease the number of wells, and increase the whole beneficial results of the prospect by utilizing the apparatus to process the data collected in-site, and achieving the curves of the resistivity determined by electromagnetic waves vs. the depth at any moment.

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